Getting serious about preventing cardiovascular disease

Southwark's Experience

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Southwark is a young, densely populated and ethnically diverse inner London borough
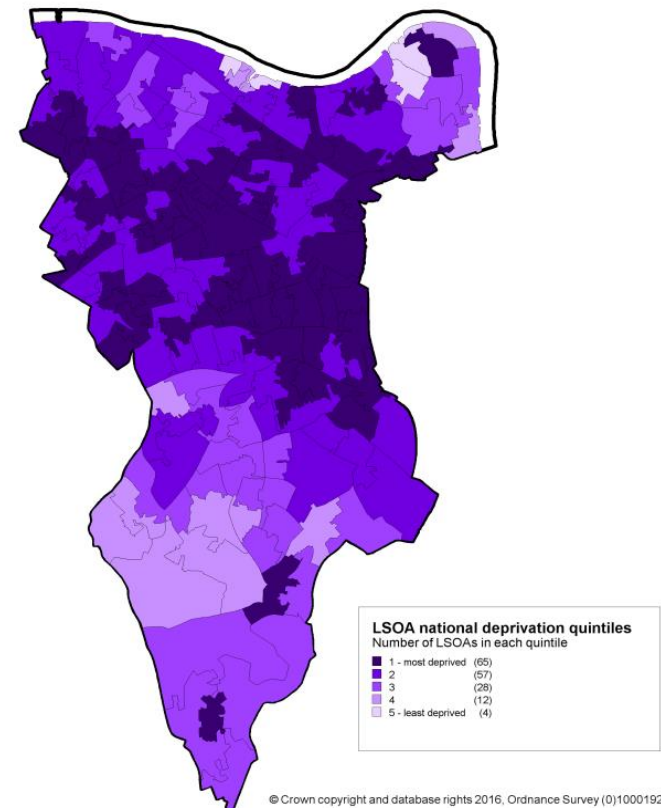
POPULATION

In 2016 Southwark's population was estimated at around 310,000.

- Southwark is the 9th most densely populated borough in London, and the population is predicted to grow by 12% to 347,000 by 2026.
- Southwark population is one of the youngest in the country with median age of 32.7 years old (In London the median age is 34.6 years and in England 39.8 years)
- Southwark is ethnically diverse; since the turn of the century, the proportion of the population identifying themselves as White fell from 63% in 2001 to 54% in 2016

Deprivation is one of the reasons for health inequalities in Southwark.

- Southwark is 40th most deprived out of 326 England local authorities and ninth most deprived out of 33 London local authorities
- Poverty, deprivation and debt along with unemployment and job insecurity

Deprivation in Southwark: areas of darker shade are among most deprived nationally

LSOA national deprivation quintiles
Number of LSOAs in each quintile

1 - most deprived	(65)
2	(57)
3	(28)
4	(12)
5 - least deprived	(4)

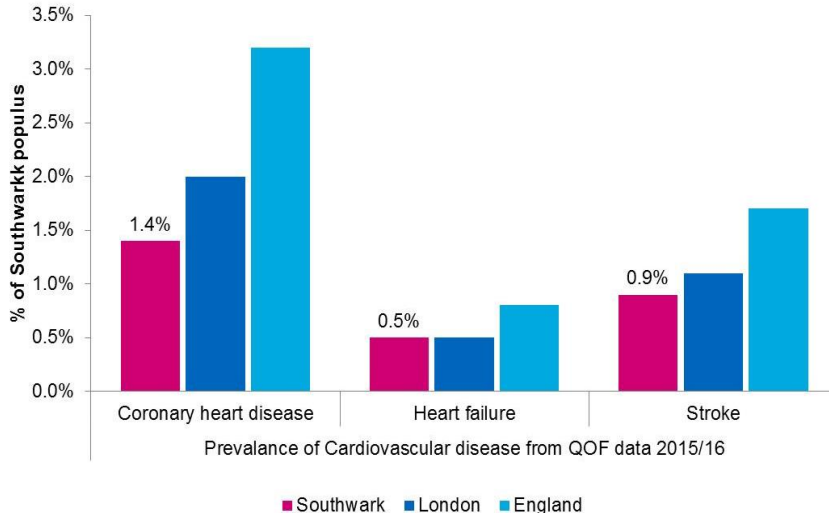© Crown copyright and database rights 2016, Ordnance Survey (0)100019252

1. Office for National Statistics mid-2015 population estimates
2. Greater London Authority SHLAA capped AHS 2015-based population projections
3. Office for National Statistics Super Output Area population data 2014
4. Greater London Authority EGPP 2014-based population projections capped AHS

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The 2015/16 local prevalence of CVD and related risk factors was similar or lower than London averages

PREVALENCE

In 2015/16 diagnosed prevalence of CVD and related risk factors in Southwark was either similar to or lower than national and London averages.

Prevalence of cardiovascular disease

The difference in local and national averages may be due to variation in age distribution or could also represent under diagnosis of disease.

- These figures are not standardised for age and given the average age in Southwark is younger than England and that CVD prevalence increases with age the lower rates may be misleading.

- Prevalence of stroke and coronary heart disease is lower in Southwark compared with national and London averages. Heart failure rates are similar in Southwark and London.

Recorded prevalence of CVD risk factors (QOF 2015/16)

| CVD Risk Factor	Southwark		London	England
	Cases	Prevalence	Prevalence	Prevalence
Atrial Fibrillation	2 262	0.7%	1.0%	1.7%
Hypertension	33 523	10.6%	11.0%	13.8%
Diabetes (17+)	15 228	5.9%	6.3%	6.6%
High Cholesterol	No data available			

1. CVD profiles for London - PHE Fingertips. Available at: https://fingertips.phe.org.uk/profile/cardiovascular/area-search-results/E39000018?search_type=list-child-areas&place_name=London

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Mortality rates from CVD in Southwark are higher than national and regional averages
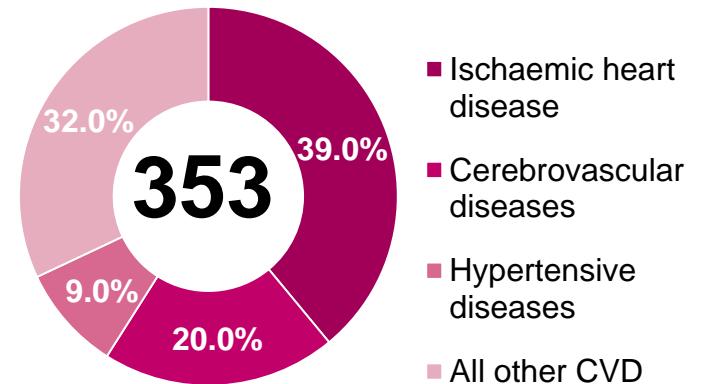
MORTALITY

With 353 deaths in 2015, CVD was the second most common cause of mortality in Southwark.

Preventable mortality from CVD for those aged under 75, 2013-15
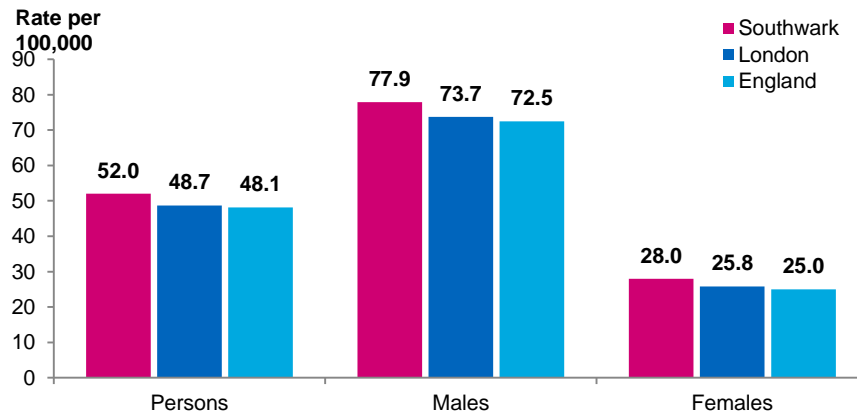
Number and percentage of deaths from cardiovascular diseases in 2015

- Ischaemic heart disease accounted for approximately 40% of all CVD cases
- Age standardised preventable (premature) deaths from CVD among people under 75 years in 2013-15 were higher in Southwark when compared with London or England as a whole.
- **Each year there are approximately 75 preventable and premature deaths in Southwark from CVD**
- This implies that either the recorded prevalence rates are significantly lower than actual prevalence rates or that the cases of CVD in Southwark are more severe or less well managed compared with national cases.

1. Cardiovascular disease (CVD) profile – Public Health (PHE) profiles 2016. Available at: *https://fingertips.phe.org.uk/profile/cardiovascular*
2. NHS Southwark CCG CVD intelligence pack, 2017. Available at: https://www.gov.uk/government/publications/southwark-ccg-cvd-primary-care-intelligence-pack
3. Southwark Annual Public Health Report (APHR) 2016.

Behavioural risk factors such as physical (in)activity and obesity contribute to CVD risk

BEHAVIOURAL RISK FACTORS

Six out of ten Southwark residents are meeting national physical activity guidelines

- The proportion of active residents in Southwark has increased from 57% in 2012-13 to 63% in 2014-15.

- However, the levels of inactivity increase with body weight with around 17% of Southwark residents classified as healthy weight being inactive compared to 32% of those who were overweight and 41% of those who were obese.

- Excess weight among children in Southwark significantly above London and national average and a real cause for concern.

Excess weight in reception
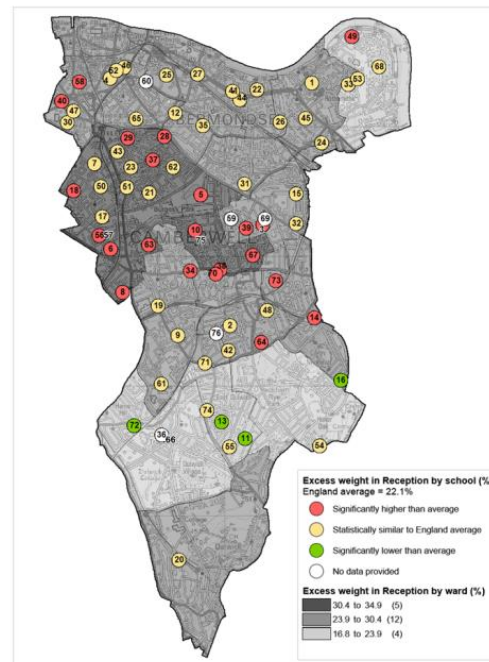
Prevalence of excess weight in Reception by primary school and by ward of residence

Data source: National Child Measurement Programme
Southwark Public Health Department | People & Health Intelligence | diana.divajeva@southwark.gov.uk
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Excess weight in Year 6
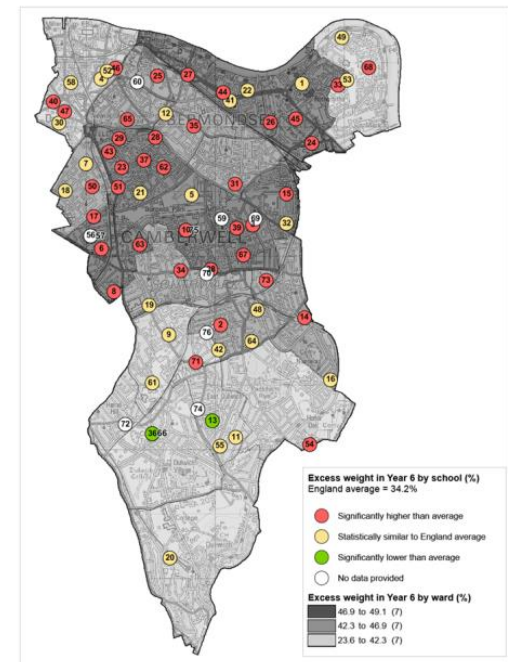
Prevalence of excess weight in Year 6 by primary school and by ward of residence

Data source: National Child Measurement Programme
Southwark Public Health Department | People & Health Intelligence | diana.divajeva@southwark.gov.uk
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Behavioural risk factors such as smoking and salt intake also contribute to CVD risk

Trend of smoking prevalence in all adults and those employed in routine and manual occupations in Southwark

Proportion of adults (%)

Legend: All adults — Adults in routine and manual occupations
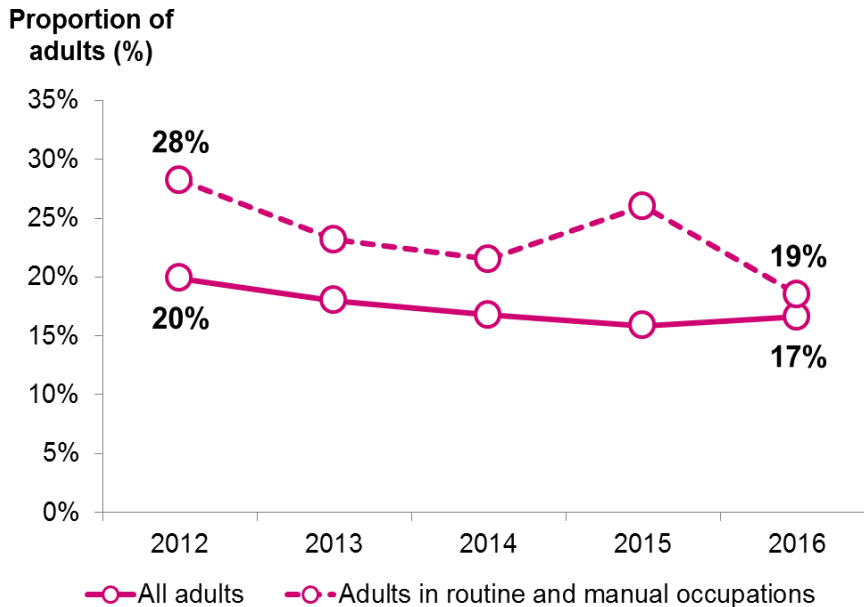
Smoking has long been known as the major risk factor for CVD.

- European data indicate that smoking doubles the 10 year CVD mortality rate.
- In 2012/14 around 1,500 potential years of life have been lost due to smoking related illness per 100,000 Southwark residents age 35+.
- In Southwark, smoking is 60% higher in adults in routine and manual occupations compared to the general Southwark population in 2015.

Reduced dietary salt for CVD prevention

- High blood pressure (hypertension) is a major risk for CVDs, especially heart attack and stroke.
- WHO recommends a reduction in sodium intake to reduce blood pressure and risk of cardiovascular disease, stroke and coronary heart disease in adults.
- WHO recommends a reduction to <2 g/day sodium (5 g/day salt) in adults.
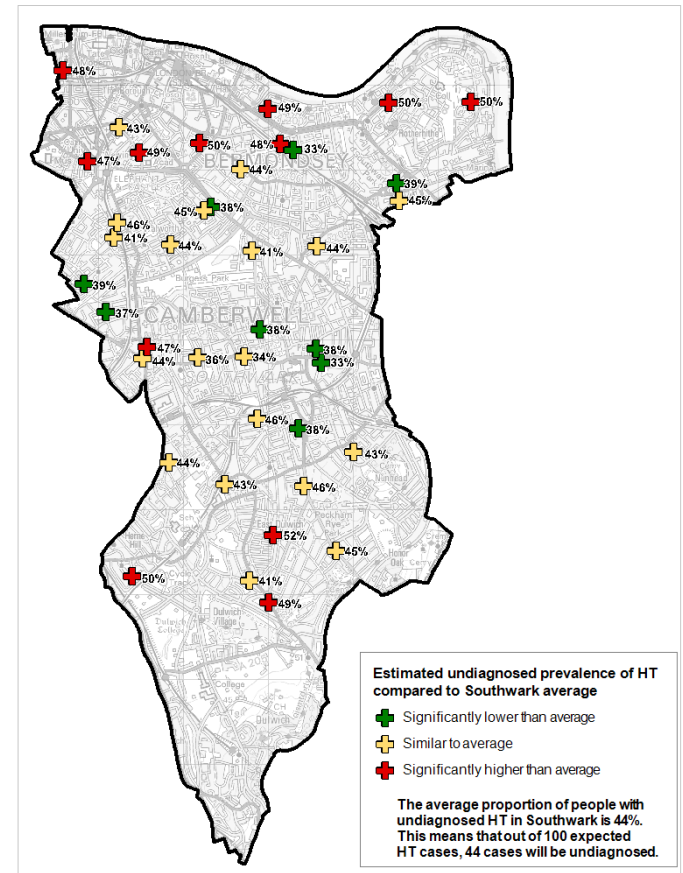
1. Public Health England Local Tobacco Control Profiles 2016
2. Public Health England, Local Alcohol Profiles for England, www.fingertips.phe.org.uk, Accessed: 16/01/2017.
3. http://www.who.int/elena/titles/sodium_cvd_adults/en/

As many as 30,000 people could be living with undiagnosed hypertension in Southwark

LOCAL HYPERTENSION PREVALENCE

In 2015-16 there were 33,523 patients in Southwark on the hypertension register, equivalent to a prevalence of 10.6%.

- This is below levels seen across London (11.0%) and England (13.8%).

- It is estimated that the expected prevalence of hypertension in the CCG was 20.5%, meaning that 9.8% or 30,000 adults could have hypertension that has not been diagnosed.

- There has been a slight increase in diagnosed prevalence over the past few years, however there remains a significant gap between recorded and expected prevalence locally (see map).

- The PHE prevalence model predicts that on average we would expect a much higher prevalence of hypertension locally with 44.1% of cases left undiagnosed for 2014.

Our diagnosed hypertension prevalence remain substantially below the modelled estimate

Estimated undiagnosed prevalence of HT compared to Southwark average

- ✚ Significantly lower than average
- ✚ Similar to average
- ✚ Significantly higher than average

The average proportion of people with undiagnosed HT in Southwark is 44%. This means that out of 100 expected HT cases, 44 cases will be undiagnosed.

Estimated prevalence of undiagnosed hypertension by GP practice
Southwark Public Health Department - People & Health Intelligence. diana.divajeva@southwark.gov.uk
Data source: PHE Hypertension prevalence estimates for local populations, 2016
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1. Prevalence of undiagnosed high blood pressure by GP practice in Southwark. Public Health Intelligence Team (2016)
2. Hypertension prevalence estimates for local populations – PHE 2016. Available at: https://www.gov.uk/government/publications/hypertension-prevalence-estimates-for-local-populations
3. Hypertension – the 'silent killer'. Faculty of Public health (2015). Available at: http://www.fph.org.uk/uploads/bs_hypertension.pdf
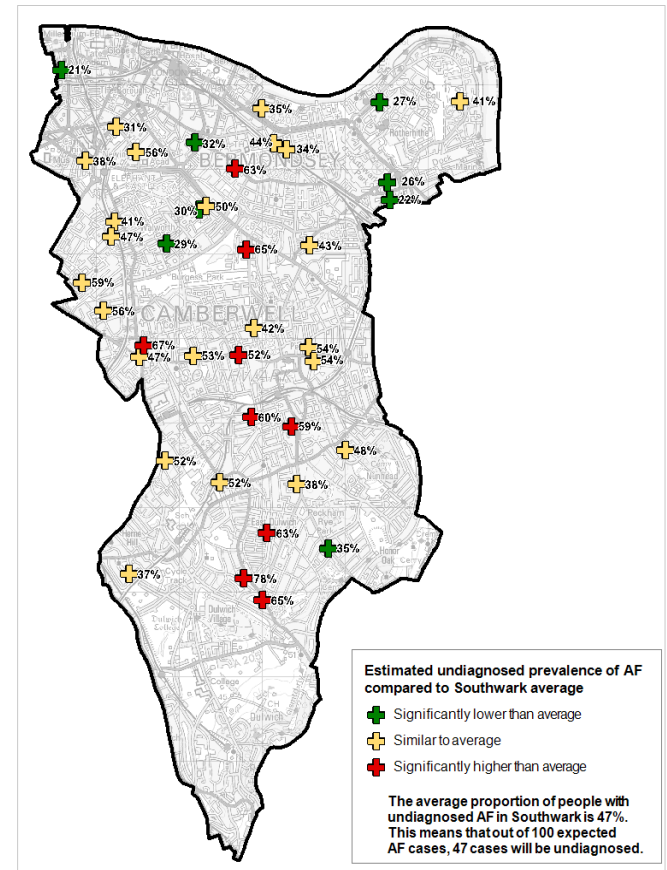
As many as 1357 people could be living with undiagnosed atrial fibrillation in Southwark

LOCAL AF PREVALENCE

In 2015-16 there were 2,262 patients on the AF register in Southwark, equivalent to a prevalence of 0.7%.

- This is significantly below the prevalence across London (1.0%) and England (1.7%).

- It is estimated that the expected prevalence of AF in the CCG was 1.3%, meaning that an addition of 0.6% or 1357 adults could have AF that has not been diagnosed.

- The CCG expected prevalence for map shows what the model predicts the percentage of undiagnosed cases of AF would be for each GP practice in Southwark.

- The PHE prevalence model predicts that on average we would expect a much higher prevalence of AF locally with 46.6% of cases left undiagnosed for 2014.

Southwark's diagnosed AF prevalence remains substantially below the modelled estimate.

Estimated undiagnosed prevalence of AF compared to Southwark average

- ✚ Significantly lower than average
- ✚ Similar to average
- ✚ Significantly higher than average

The average proportion of people with undiagnosed AF in Southwark is 47%. This means that out of 100 expected AF cases, 47 cases will be undiagnosed.

Estimated prevalence of undiagnosed atrial fibrillation by GP practice
Southwark Public Health Department - People & Health Intelligence, diana.divajeva@southwark.gov.uk
Data source: PHE Atrial fibrillation prevalence estimates for local populations, 2015
August 2017
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1. Southwark prevalence of undiagnosed high blood pressure by GP practice. Public Health Intelligence Team (2016)
2. Atrial fibrillation prevalence estimates for local populations - PHE 2015. Available at: https://www.gov.uk/government/publications/atrial-fibrillation-prevalence-estimates-for-local-populations
3. Chugh SS, Havmoeller R, Narayanan K, et al. Worldwide epidemiology of atrial fibrillation (A global burden of disease 2010 study). http://circ.ahajournals.org/content/129/8/837

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Up to 41,000 people living in Southwark may have undiagnosed diabetes or non diabetic high blood sugar
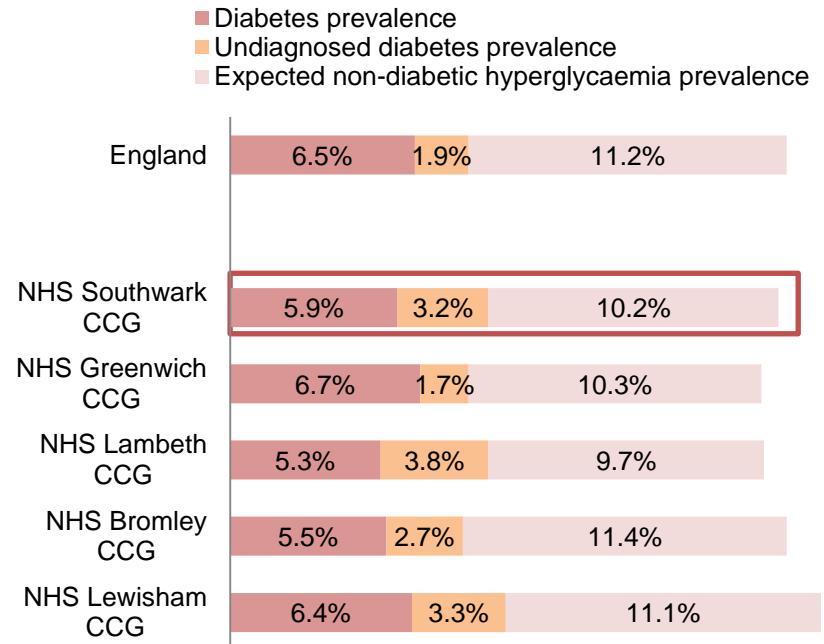
LOCAL DIABETES PREVALENCE

Diabetes is a common, chronic disease that may lead to a range of complications which can cause disability and reduce quality of life and life expectancy.
Approximately 9% of the adult population in the UK has diabetes.

The estimated total prevalence of diabetes in NHS Southwark CCG is 9.1% (diagnosed 5.9%, undiagnosed 3.2%).

- Additionally, there are an estimated 10.2% of people in SCCG who are at increased risk of developing diabetes (i.e. with non-diabetic hyperglycaemia).

- In total it is estimated that 13.4% of people living in Southwark may have either undiagnosed diabetes or non diabetic hyperglycaemia.

- This means that 19.3% of our population are estimated to have diabetes, or at high risk of developing diabetes and only 5.9% have a confirmed diagnosis.

Expected total prevalence of diabetes and non-diabetic hyperglycaemia

- ■ Diabetes prevalence
- ■ Undiagnosed diabetes prevalence
- ■ Expected non-diabetic hyperglycaemia prevalence

	Diabetes prevalence	Undiagnosed diabetes prevalence	Expected non-diabetic hyperglycaemia prevalence
England	6.5%	1.9%	11.2%
NHS Southwark CCG	5.9%	3.2%	10.2%
NHS Greenwich CCG	6.7%	1.7%	10.3%
NHS Lambeth CCG	5.3%	3.8%	9.7%
NHS Bromley CCG	5.5%	2.7%	11.4%
NHS Lewisham CCG	6.4%	3.3%	11.1%

1. PHE prevalence by GP practice, QOF data 2015/16 – PHE fingertips.
2. Bagheri N, McRae I, Konings P, et al. Undiagnosed diabetes from cross-sectional GP practice data: an approach to identify. communities with high likelihood of undiagnosed diabetes. *BMJ Open 2014*;4:e005305.

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Local health check data reveals that 44% of people tested had total cholesterol ≥ 5 mmol per litre

HIGH CHOLESTEROL

Since there are no local data collected on cholesterol, the data are gathered from NHS Health Checks are used below as a proxy.

The health check data highlights that of the people who had their cholesterol measured for the last 5 years 44% were found to have a total cholesterol greater than 5 mmol per litre.

Year	Health Checks completed	Total Cholesterol ≥ 5mmol/L
2012 - 2017	39973	17542 (44%)

Previously these results would have been considered to show high cholesterol and therefore increased CVD risk. Current evidence places greater emphasis on the ratio of HDL to other cholesterol. Without this further detail it is difficult to understand the full implications of these results.

Q-Risk2 is a risk calculator used to predict a persons 10 year risk of a CVD event and takes into account also the ratio of all cholesterol to HDL cholesterol.

		Optimal	Moderate	High
Total/HDL ratio	Men	<3.5	3.5 − 5.0	>5.0
	Women	<3.0	3.0 - 4.4	>4.4
LDL to HDL ratio		<2.5	2.5 − 3.3	>3.3
HDL to LDL ratio		>0.4	0.4 to 0.3	<0.3
TG to HDL ratio		<2	2 − 3.8	>3.8

If a patient has a QRisk2 score of 10% or greater NICE recommends they take a statin.

1. Local data from Health Checks, Southwark Public Health

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Health checks in Southwark found 20% of people tested had a moderate (or higher) risk for CVD

SOUTHWARK HEALTH CHECK RESULTS

Between 2012 and 2017 we identified 7829 people who were moderate or higher risk for CVD, which is 20% of the cohort who accepted the invitation to health check. This figure means that **1 in 5 tested could benefit from further interventions that we know work in preventing CVD**.

	2012-13	2013-14	2014-15	2015-16	2016-17	5 year total
Health Checks completed	6,262	7,631	8,826	9,478	7,776	39973
Hypertension ≥140/90	5456	1,142 (15%)	974 (11%)	1,115 (12%)	1,172 (15%)	5456(14%)
Cholesterol ≥ 5	2,372 (42%)	3,247 (54%)	3,871 (45%)	4,326 (45%)	3,726 (48%)	17542(44%)
Diabetes	88 (1%)	90 (1%)	97 (1%)	148 (2%)	89 (1%)	512(1%)
Impaired glucose tolerance	317 (5%)	405 (5%)	403 (5%)	703 (7%)	476 (6%)	2304(6%)
CVD risk:	JBS2:	JBS2:	JBS2:	QRISK:	QRISK:	
Mod ≥10%->20%	1,317 (21%)	1,509 (20%)	1,423 (16%)	985 (10%)	731 (9%)	5965(15%)
High - ≥ 20%- 30%	385 (6%)	339 (4%)	381 (4%)	216 (2%)	101 (1%)	1422(4%)
Very High > 30%+	123 (2%)	126 (2%)	121 (1%)	54 (1%)	18 (0%)	442(1%)

More could be done to deliver these interventions.
- NICE recommends support to change behaviour for those identified to be at modified or higher risk (7829 people in our cohort).
- If this fails, then statins should also be offered.
- However, our GPs are reporting **low referrals into behaviour change** interventions (1410 persons), and **low rates of statin prescribing** (862 persons). It is also unclear whether people with high blood pressure **receive blood pressure medication** to manage this condition, as advised.

1. NICE. Clinical guideline [CG181]: Cardiovascular disease: risk assessment and reduction, including lipid modification. 2014. Points 1.3.14 to 1.3.18 https://www.nice.org.uk/guidance/cg181/chapter/1-recommendations

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Most CVD can be avoided by implementing strategies that focus on blood pressure, diet and cholesterol

SUMMARY OF RISK FACTORS

Across London, the top modifiable risk factors for developing CVD are:

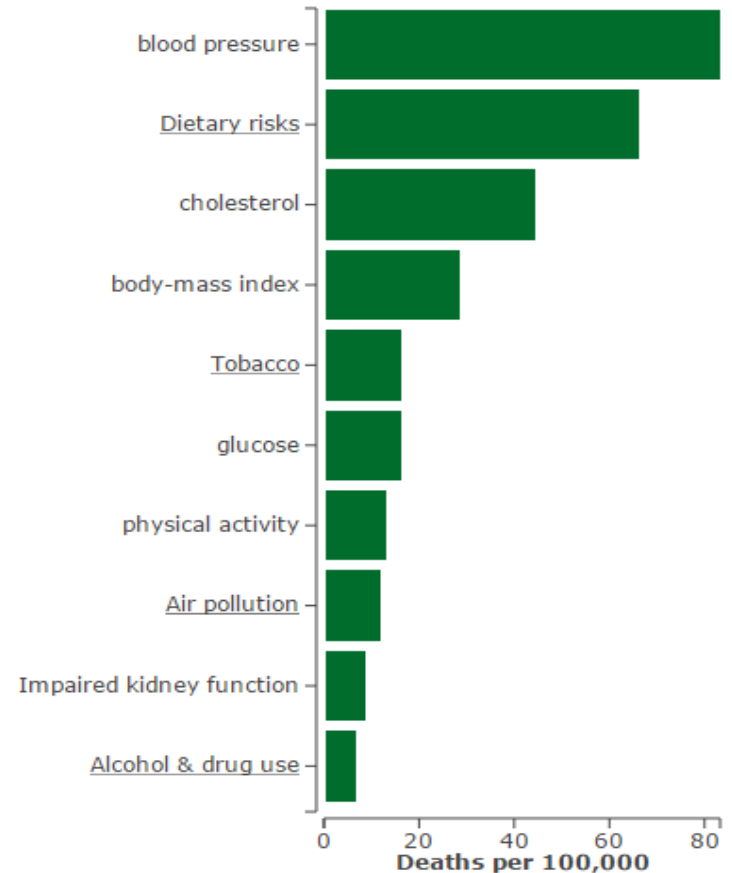**Evidence-based prevention strategies:**

- Blood pressure medications,
- Diet and physical activity advice and support,
- Statin medication,
- Help to stop smoking

All the above combined can have a real impact on reducing cardiovascular disease morbidity and preventable mortality in Southwark.

1. GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, 2016;388 (10053):1659-1724. http://ihmeuw.org/47xl

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By identifying and treating patients at higher CVD risk, the overall burden of these conditions can be reduced

SUMMARY

1. A significant number of the population in Southwark have an undiagnosed CVD risk factor.

2. The NHS Health checks programme is achieving and exceeding the NHS England targets and have identified a 20% prevalence in the eligible population tested being at a higher risk for CVD.

3. Reducing the CVD risks and morbidity in Southwark by setting local priorities for primary prevention.

4. Reducing the overall burden of disease locally by focusing on the treatment and management of CVD both in primary and secondary care.

1. **Tackling that issue by:**
   o Better understanding the wide GP variation in terms of recorded and estimated prevalence for high BP, AF, and undiagnosed diabetes;
   o Ensuring that those with confirmed hypertension go on to receive effective medicines to lower their blood pressure.

2. **Improvements are required to:**
   o Enable GPs to refer more quickly and easily to behaviour change services (smoking, obesity, poor diet and alcohol excess); and
   o Encourage GPs to offer and prescribe statins more appropriately, as per NICE guidance

3. **Support individual behaviour change**
   o Aimed at reducing key behaviour risk factors. Most CVD cab be avoided by focusing on blood pressure, diet and cholesterol.

Robson J, et al. The NHS Health Check in England: an evaluation of the first 4 years. Cardiovascular medicine 2016.
http://bmjopen.bmj.com/content/6/1/e008840

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Getting serious about preventing cardiovascular disease

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